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## **Mission report in Tajikistan for ECOM LLC**

**August 19<sup>th</sup> to 27<sup>th</sup>, 2012**

**Preliminary study on the restructuring of the  
cotton seed supply chain (2<sup>nd</sup> mission).**

**Bruno BACHELIER**

***Departement Performance of Tropical Production and  
Processing Systems (Persyst)***

***Research Unit Annual cropping systems (Ursca)***

***Team Elaboration and characterization of the  
quality of the products of annual cropping systems  
(Quality)***

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## 1. Mission objectives and schedule

Today, the poor quality (in terms of purity and viability) of cotton seeds available in Tajikistan is one of the main limitations to improve cotton production in this country. Therefore, ECOM LLC Tajikistan, looking for solutions facing this problem, asked CIRAD for varieties and valuation. To answer this request, a first valuation mission was carried out in March 2012 by Bruno BACHELIER, cotton breeder in CIRAD / Research Unit Annual cropping systems (Montpellier, France). According to his proposals<sup>1</sup>, ECOM implemented:

- 4 multisite cotton variety trials (2 in Yavan area and 2 in Jomi area), to compare statistically 9 varieties: **Khujand-0.5**, **S6530** and **B70** considered as local references (seeds from Tajikistan), **CD406** (seeds from CIRAD, France), **Flash**, **BA151**, **BA320** and **PG2018** (seeds from ProGen company, Turkey), and **ADNP01** (seeds from May company, Turkey);
- a seed multiplication field of **CD406**, to increase the seed quantity available for this variety;
- a reselection programme of **B70**, to try to improve the genetic purity of this variety grown in Tajikistan, but known to be today a mix of several varieties.

The general objectives of this second mission of Bruno BACHELIER were:

- i) to visit the multisite cotton variety trials, the seed multiplication field, and the reselection programme,
- ii) to make decisions about their exploitation (harvest, ginning) and the analyses (seeds and fiber) to be carried out,
- iii) to give to the ECOM agronomist, in charge of this programme, some information about cotton plant (growth and development) and on cotton fiber (origin, composition, development, characteristics and characterization).

This mission lasted 8 days and went as follows (see map Figure 1):

August 19<sup>th</sup>: Flights Montpellier-Paris, Paris-Istanbul and Istanbul-Dushanbe.

August 20<sup>th</sup>: Arrival in Dushanbe.

Day off (end of Ramadan)

August 21<sup>st</sup>: ECOM office. Discussion with Antoine BUISSON, ECOM LLC Sustainability and Program Director

Yavan by car with Antoine BUISSON. Meeting with Nourridine KHOLMURODOV, ECOM Agronomist. Visit of the 2 multisite cotton variety trials in Yavan area.

Back to Dushanbe by car.

August 22<sup>nd</sup>: Jomi by car with A. BUISSON.

Visit of the 2 multisite cotton variety trials and of the CD 406 multiplication in Jomi area with N. KHOLMURODOV.

Back to Dushanbe by car.

August 23<sup>rd</sup>: ECOM office.

Yavan by car with A. BUISSON.

<sup>1</sup> Bachelier, B. (2012). Mission report in Tajikistan for ECOM LLC, March 11<sup>th</sup> to 22<sup>nd</sup>, 2012. Preliminary study on the restructuring of the cotton seed supply chain. Montpellier (FRA), CIRAD: 45 p.

Discussion with A. BUISSON and N. KHOLMURODOV of actions to be undertaken for multisite cotton variety trials and for multiplication.

Back to Dushanbe by car.

August 24<sup>th</sup>: Yavan by car (ECOM shuttle).

Visit of the cotton variety trial and the BA 70 reselection field in Hoji Bolta with N. KHOLMURODOV.

Information for N. KHOLMURODOV about cotton plant and cotton fiber.

Back to Dushanbe by car.

August 25<sup>th</sup>: Yavan by car with A. BUISSON.

Back to Dushanbe by car.

August 26<sup>th</sup>: ECOM office, discussion with A. BUISSON and Bertrand GAYET (ECOM Consultant).

August 27<sup>th</sup>: Flights Dushanbe - Istanbul, Istanbul - Paris CDG, and Paris CDG - Montpellier.

Many thanks to Antoine BUISSON for the excellent organization and progress of the mission. Antoine accompanied me during a large part of the mission and made greatly easier the exchanges of views with the Tajik people I met.



Figure 1. Map of Tajikistan (the city of Yavan is surrounded).

## 2. ECOM multisite cotton varietal trials

### 2.1. Visit of the fields

#### 2.1.1. Bahoduron trial (Yavan area)

In June 2012, A. Buisson wrote the following comment:

*“At Bahoduron, sowing was very late (due to high level of water and to muddy conditions) and badly done, with lines of elementary plots being not straight and not matching with each other. This has serious negative implications: a) hand work; b) elementary plots being not of the same size (in terms of lines), statistical work will be disturbed. Also, the plot was not maintained at all, weeds were everywhere, so that the plot did not look like one at all.”*

We visited this trial on August 21<sup>st</sup> (photo 1). We confirmed the lack of border lines on each side of the trial, and the presence of curved lines (what is not really a problem). Nevertheless, the trial was clean of weeds, the cotton plants development was globally good, and the lower bolls began to open. At this step, it seemed possible to statistically exploit this trial.



**Photo 1. cotton variety trial in Bahoduron (Yavan area), August 21<sup>st</sup>, 2012.**

#### 2.1.2. Hoji Bolta trial (Yavan area)

In this trial, the plant density was good, except in 2 or 3 plots with missing plants. This information was written down in the “SEED-HOLES AND PLANTS COUNTING FORM”. For



these plots, we recommended to Nourridine KHOLMURODOV, ECOM Agronomist, to harvest 1 or 2 of the lateral lines instead of 1 or 2 of the central lines. The cotton plants development was good and quite homogeneous, and the lower bolls began to open (photo 2). This trial looked like the best one out of the four. It will be statistically exploitable.



**Photo 2. Cotton variety trial in Hoji Bolta (Yavan area) , August 24<sup>th</sup>, 2012.**

#### **2.1.3. Sator trial (Jomi area)**

This trial was the worst one out of the four. It was very heterogeneous regarding cotton plants development (photo 3). Several plots of several replications were nearly empty. This situation will probably allow no statistical analysis of the agronomic characteristics, in particular the yield. After harvest, the interest of ginning the seed-cotton from each plot and of analyzing the fiber will be discussed.

#### **2.1.4. Boboi Sodir (Jomi area)**

In this trial, the development of cotton plants is heterogeneous and low, in particular in side plots. On the right side of the trial, there was a problem of irrigation. On left side of the trial, the problem was due to a line of trees, which created shade and competition with cotton plants for water and fertilizers (photo 4). These problems were worsen firstly by the lack of border lines in this trial, and secondly by the lack of one out of the five lines of the four plots on the left side of the trial (n° 1, 20, 21, and 40). To try to reduce the impact of this last problem, we recommended to harvest lines 3, 4, and 5 (plots 1 and 21) and lines 1, 2, and 3



(plots 20 and 40), instead of harvesting lines 2, 3, and 4, as written in the “OPERATING PROCEDURE FOR MULTISITE COTTON VARIETY TRIALS - YEAR 2012”. Nevertheless, even with this modification, it is not sure that the statistical analysis of the agronomic characteristics, in particular the yield, will be possible for this trial.



**Photo 3. Cotton variety trial in Sator (Jomi district), August 22<sup>nd</sup>, 2012.**



**Photo 4. Cotton variety trial in Boboi Sodir (Jomi area) , August 22<sup>nd</sup>, 2012.**



## 2.1. Recommendations for harvest, ginning and analysis

The harvest shall be done according to the recommendations given in the “Operating procedure for multisite cotton variety trials – Year 2012”<sup>2</sup>. For plots with missing plants of missing lines, the harvest will be adapted as discussed with N. KHOLMURODOV.

Ginning will be done, using ECOM laboratory microgin (photo 5), trial per trial and plot per plot (in the order of the plot numbers, from 1 to 40). Central lines and side lines will be ginned separately. For each plot, the seed-cotton, the seeds and the fibre will be weighted to calculate the ginning out-turn (GOT) = fibre weight / seed-cotton weight, in %.



**Photo 5. ECOM laboratory microgin (10-saw) in Yavan.**

<sup>2</sup> See: Bachelier, B. (2012). Mission report in Tajikistan for ECOM LLC, March 11<sup>th</sup> to 22<sup>nd</sup>, 2012. Preliminary study on the restructuring of the cotton seed supply chain. Montpellier (FRA), CIRAD: 45 p.



For each plot, a sample of 500 seeds will be used to calculate the seed-index (average weight of 100 seeds). Then, seeds will be delinted using sulfuric acid, neutralized with lime, dried and weighted, to calculate the linter percentage = (weight of seeds with linter – weight of delinted seeds) / weight of seeds with linter. In addition, a germination test could be done.

For each plot, a sample of fiber will be tested on HVI in Tajikistan. In addition, Cirad cotton laboratory in Montpellier (France) proposes to measure fineness (lineic fineness (H), standard fineness (Hs)), and maturity (maturity ratio (MR) and mature fibers (PM)) on a sample of each plot. For such a measurement, 30 grams of fiber are required (for 2 replications per sample) and the price is 14.72 € per sample.

A report will be done by the end of 2012 including all the agronomic observations and all the results (yield, ginning, fiber and seed characteristics). According to this information, decision will be made regarding the varieties to be tested in trials and possibly multiplied in 2013.

### **3. Seed multiplication of CIRAD variety CD 406**

#### **3.1. Visit of the field**

In order to get enough seeds of the CIRAD variety CD 406, if the results of the multisite variety trials were favorable to this variety, a seed multiplication field of 0,4 ha was sown by ECOM in Boboi Sodir village. When visiting this field on August, 22<sup>nd</sup>, the development of cotton plants was good and homogeneous, and bolls began to open (photo 6). N. KHOLMURODOV did several plants eliminations (off-types, sterile or diseased plants).

Unfortunately, in spite of the assurance given by the farmer before sowing that there would be no cotton field at less than 300 m around, two cotton fields were sown in this area. And, of course, with another variety, Khujand-0.5. The first one is the adjacent field, which belongs to another farmer (photo 7). The second is more far, but still too close. To minimize the risk of losing the varietal purity of this multiplication of CD 406, the following precautions were taken:

- the CD 406 seed multiplication field was sprayed with insecticide once each two weeks to reduce cross-pollinations between both varieties, as cross-pollinations are due to insects (mainly bees);
- a border was delimited on two sides of CD 406 seed multiplication field: 5 lines along the adjacent field and 10 meters in front of the other field.





**Photo 6. CD 406 seed multiplication field in Boboi Sodir (Jomi area), August 22<sup>nd</sup>, 2012.**



**Photo 7. CD 406 multiplication (on the left) and the neighbouring field (on the right) sown with another variety, August 22<sup>nd</sup>, 2012.**



### 3.2. Recommendations for harvest, ginning and analysis

For the harvest of the CD 406 seed multiplication field, we recommended to begin by the central part of the field. Seed-cotton will be spread on a canvas sheet to dry before being packed into bags marked (inside and outside) CD 406 / Boboi Sodir central part / 2012. Then, the harvest will go on in the delimited border of the field, and dry seed-cotton will be packed into bags marked (inside and outside) CD 406 / Boboi Sodir border / 2012. The total number of bags needed for the harvest will be estimated by N. KHOLMURODOV (350 bags are already in stock at ECOM office).

The ginning of this multiplication can be done in ECOM industrial gin plant (photo 8), but this requires to take some precautions. After deep and careful cleaning of all the ginning system, the gin plant will be run empty during several minutes. During this time, several handfuls of seed-cotton of “CD 406 / Boboi Sodir border / 2012” will be thrown in the seed screw to clean it. Only one gin stand can be used to gin this multiplication. Begin to gin the seed-cotton of “CD 406 / Boboi Sodir border / 2012”, and put the seeds in marked bags (the same bags used for this “border” seed-cotton can be re-used for these “border” seeds). Then gin the seed-cotton of “CD 406 / Boboi Sodir central part / 2012”. The first bag of seeds will be considered as “border” seeds. Only the following bags of seeds will be considered as seeds of “CD 406 / Boboi Sodir central part / 2012” and put in marked bags (the same bags used for this “central part” seed-cotton can be re-used for these seeds). All seeds will be treated according to ECOM rules, with a lot of care to avoid any mix of varieties or origins.



Photo 8. ECOM gin plant in Yavan.

To check the quality of the seeds produced, a representative sample (nearly 1 kg) should be taken during ginning. Out of this sample should be taken 5 batches of 100 seeds each. Each



batch will be weighted separately to calculate an average seed index (= weight of 100 seeds). The germination rate of each batch will be evaluated according to ECOM usual method (in rolled paper sheet or on sand).

In addition, if ECOM wants to get some information on the quality of the fibre got in industrial conditions, some samples can be taken during ginning and tested on HVI.

## 4. Reselection in variety BA 70

### 4.1. Visit of the field

As the Tajik variety BA 70 has become a mix of several varieties, the previous ECOM agronomists (A. and A. Sanguinov) initiated a reselection in this variety. Based on HVI values, seeds from plants whose fibre characteristics correspond to those expected from B70 (mainly for length and strength) were kept. These seeds were sowed in 2012 in family plots (of one or several lines, according to the number of seeds available), in Hoji Bolta, close to the cotton variety trial.

The field was clean and the cotton plants well developed. Among the family lines, some looked quite homogeneous when some showed plants with various heights, precocities, shapes, etc. Two or three lines comprised “okra” cotton plants with typical laciniate leaves (photos 9 and 10). This confirms, if needed, that the so-called B70 variety grown in Tajikistan is really mixed. Heterogeneous plots and plots with abnormal, diseased, or sterile plants were marked and will not be harvested.



Photos 9 and 10. “Okra” cotton plants in the BA 70 reselection.

One can deplore that the protocole did not plan to “self-pollinate” the cotton plants. This would avoid “cross-pollination” between different families and speed-up the reselection process.

#### **4.2. Recommendations for harvest, ginning and analysis**

Except for marked plots, the harvest will be done plot per plot (one plot in one bag). Each plot will be ginned separately using the ECOM laboratory microgin (photo 8 above). The seed-cotton, the seeds and the fibre will be weighted to calculate the ginning out-turn ( $GOT = \text{fibre weight} / \text{seed-cotton weight}$ , in %). A selection could be done at this step on GOT to eliminate the off-type families.

Fibre will be analyzed on HVI. The values (mainly of length and strength) will be used to select the best families. These ones will be used to continue the reselection process in 2013.

### **5. Training**

A training session was given to Nourridine KHOLMURODOV about seed-cotton and cotton fibre. A focus was done on their origin, their genesis, the effects of cultivation and environmental conditions, the most important physical characteristics (length, strength, micronaire, colour, fineness, and maturity) and the main apparatus to measure them.

### **6. People met**

PILLONEL Fernand, ECOM LLC (Tajikistan), General Director  
BUISSON Antoine, ECOM LLC (Tajikistan), Sustainability and Program Director  
KHOLMURODOV Nouriddin, ECOM LLC (Tajikistan), Agronomist  
SPASKY Boris, ECOM (Mexico)  
GAYET Bertrand, ECOM LLC (Tajikistan), Consultant.

**ANNEX 1.**  
**MULTISITE COTTON VARIETY TRIALS - YEAR 2012**  
**INFORMATION FORM**  
**Trials of Hoji Bolta, Bahoduron, Sator, and Boboi Sodir**





ECOM LLC

# MULTISITE COTTON VARIETY TRIALS – YEAR 2012 ИНФОРМАЦИОННЫЙ БЛАНК

Расположение: Баходурон (Bahoduron)

ПОДГОТОВКА ПОЛЯ			
Предыдущая культура:	Cotton	Дата обработки почвы:	11/05/2012
ПРОВЕДЕНИЕ ИСПЫТАНИЯ:			
Осадки до посева:	мм	Температура почвы при посеве:	°C
Дата посева:	12/05/ 2012	Температура воздуха при посеве :	
Дата всхода:	20/05/ 2012	Качество всхода:	<del>хороший</del> / <del>средний</del> / <b>плохой</b>
Дата пересева :	/ / 2012		
Дата внесения суперфосфата :	/ / 2012	Количество:	кг / га
Дата внесения карбомида:	27/06/ 2012	Количество:	250 кг / га
Дата внесения аммиачной селитры:	/ / 2012	Количество:	кг / га
Дата прореживания:	23/06/ 2012	Количество растений на семенной лунке:	_____
Расстояние между рядами:	___90 см	Расстояние между семенными лунками:	_____
_____ см			
ОБСЛУЖИВАНИЕ ИСПЫТАНИЯ:			
Дата прополки:	1 <sup>-ая</sup> : 21/06/ 2012	2 <sup>-ая</sup> : / / 2012	3 <sup>-ая</sup> : / / 2012
Дата орошения:	1 <sup>-ое</sup> : 28/06/ 2012	2 <sup>-ое</sup> : / / 2012	3 <sup>-ее</sup> : / / 2012
	4 <sup>-ое</sup> : / / 2012	5 <sup>-ое</sup> : / / 2012	6 <sup>-ое</sup> : / / 2012
Фитосанитарная обработка:	1 <sup>-ая</sup> : / / 2012	2 <sup>-ая</sup> : / / 2012	3 <sup>-ая</sup> : / / 2012
Продукт:		Продукт:	Продукт:
ДАТА СБОРА УРОЖАЯ			
1 <sup>-ый</sup> :	/ / 2012	2 <sup>-ой</sup> :	/ / 2012
		3 <sup>-ий</sup> :	/ / 2012
ЗАМЕЧАНИЯ			
<p>SOWING WAS NOT DONE PROPERLY. THE LINES OF ELEMENTARY PLOTS DO NOT COINCIDE WITH EACH OTHER SO THAT IT IS VERY DIFFICULT TO CONDUCT MECHANIZED WORK ON THIS VERY VARIETY TRIAL. WORK WILL BE DONE BY HAND. ALSO THE ELEMENTARY PLOTS BEING OF DIFFERENT SIZE (LINES CAN BE MISSING), IT WILL DISTURBE STATISTICAL WORK.</p> <p>BAD EMERGENCE ON THE TRIAL PLOT WHEREAS THE REST OF THE FIELD SHOWS CROP DEVELOPING NORMALLY.</p> <p>THE FARMER WAS VISITED BY ALL ECOM AGRONOMISTS (IN THE FORMAT OF A COMMISSION) TO RESPONSIBILIZE HIM ON THE IMPORTANCE OF THIS LAND PLOT. CORRECTIVE ACTIONS WERE TAKEN. ALSO BORDERS (WITH 2 LINES OF COTTON VARIETY KHUJAND-0.5, AS INITIALLY AGREED) HAVE NOT BEEN PLANTED PROPERLY.</p>			



ECOM LLC

# MULTISITE COTTON VARIETY TRIALS – YEAR 2012 ИНФОРМАЦИОННЫЙ БЛАНК

Расположение: **Ходжи Болта (Hodji Bolta)**

## ПОДГОТОВКА ПОЛЯ

Предыдущая культура: Cotton

Дата обработки почвы: 10/04/2012

## ПРОВЕДЕНИЕ ИСПЫТАНИЯ:

Осадки до посева: мм

Температура почвы при посеве: °C

Дата посева: 21/ 04 / 2012  
°C

Температура воздуха при посеве :

Дата всхода: 01/ 05 / 2012

Качество всхода: ~~хороший~~ / **средний** / ~~плохой~~

Дата пересева : / / 2012

Дата внесения суперфосфата : 30/05 / 2012 Количество: 100 кг / га

Дата внесения карбомида: 30/05 / 2012 Количество: 200 кг / га

Дата внесения аммиачной селитры: / / 2012 Количество: кг / га

Дата прореживания: 01/06/ 2012 Количество растений на семенной лунке: \_\_\_\_\_

Расстояние между рядами: \_\_\_\_90\_\_ см Расстояние между семенными лунками: \_\_\_\_\_

## ОБСЛУЖИВАНИЕ ИСПЫТАНИЯ:

Дата прополки: 1<sup>-ая</sup>: 04/05/ 2012 2<sup>-ая</sup>: 15/06/ 2012 3<sup>-ая</sup>: / / 2012

Дата орошения: 1<sup>-ое</sup>: 29/06/ 2012 2<sup>-ое</sup>: / / 2012 3<sup>-ое</sup>: / / 2012  
4<sup>-ое</sup>: / / 2012 5<sup>-ое</sup>: / / 2012 6<sup>-ое</sup>: / / 2012

Фитосанитарная обработка: 1<sup>-ая</sup>: / / 2012 2<sup>-ая</sup>: / / 2012 3<sup>-ая</sup>: / / 2012  
Продукт: Продукт: Продукт:

## ДАТА СБОРА УРОЖАЯ

1<sup>-ый</sup>: / / 2012 2<sup>-ой</sup>: / / 2012 3<sup>-ий</sup>: / / 2012

## ЗАМЕЧАНИЯ

HODJI BOLTA PROCEEDED WITH A SECOND FERTILIZATION ON 27-28/06/2012 WITH 150 KG/HA OF UREA.

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ECOM LLC

# MULTISITE COTTON VARIETY TRIALS – YEAR 2012 ИНФОРМАЦИОННЫЙ БЛАНК

Расположение: **Сатор (Sator)**

ПОДГОТОВКА ПОЛЯ			
Предыдущая культура:	Cotton	Дата обработки почвы:	01/05/2012
ПРОВЕДЕНИЕ ИСПЫТАНИЯ:			
Осадки до посева:	мм	Температура почвы при посеве:	°C
Дата посева:	02/05/ 2012	Температура воздуха при посеве :	
	°C		
Дата всхода:	10/05/ 2012	Качество всхода:	<del>хороший</del> / <del>средний</del> / <b>плохой</b>
Дата пересева :	/ / 2012		
Дата внесения суперфосфата :	22/05/ 2012	Количество:	50 кг / га
Дата внесения карбомида:	22/05/ 2012	Количество:	200 кг / га
Дата внесения аммиачной селитры:	/ / 2012	Количество:	кг / га
Дата прореживания:	10/06/ 2012	Количество растений на семенной лунке:	_____
Расстояние между рядами:	_____ 60 см	Расстояние между семенными лунками:	_____ см
ОБСЛУЖИВАНИЕ ИСПЫТАНИЯ:			
Дата прополки:	1 <sup>-ая</sup> : 15/05/ 2012	2 <sup>-ая</sup> : 25/06/ 2012	3 <sup>-ая</sup> : / / 2012
Дата орошения:	1 <sup>-ое</sup> : 20/06/ 2012	2 <sup>-ое</sup> : / / 2012	3 <sup>-ее</sup> : / / 2012
	4 <sup>-ое</sup> : / / 2012	5 <sup>-ое</sup> : / / 2012	6 <sup>-ое</sup> : / / 2012
Фитосанитарная обработка:	1 <sup>-ая</sup> : / / 2012	2 <sup>-ая</sup> : / / 2012	3 <sup>-ая</sup> : / / 2012
	Продукт:	Продукт:	Продукт:
ДАТА СБОРА УРОЖАЯ			
1 <sup>-ый</sup> :	/ / 2012	2 <sup>-ой</sup> :	/ / 2012
		3 <sup>-ий</sup> :	/ / 2012
ЗАМЕЧАНИЯ			
Sator proceeded to a second fertilization on 17/06/2012 with 50 kg/ha of super-phosphate and 150 kg/ha of urea.			
Bad emergence on the trial plot whereas the rest of the field shows crop developing normally.			
.....			





**ECOM LLC**

## MULTISITE COTTON VARIETY TRIALS – YEAR 2012

Расположение: **БоБои Содир (Boboi Sodir)**

<b>ПОДГОТОВКА ПОЛЯ</b>			
Предыдущая культура:	Corn (pdtal plot)	Дата обработки почвы:	25/03/2012
<b>ПРОВЕДЕНИЕ ИСПЫТАНИЯ:</b>			
Осадки до посева:	мм	Температура почвы при посеве:	°C
Дата посева:	26-27/04/ 2012	Температура воздуха при посеве :	
°C			
Дата всхода:	06/05/ 2012	Качество всхода:	<del>хороший</del> / <b>средний</b> / <del>плохой</del>
Дата пересева :	/ / 2012		
Дата внесения суперфосфата :	26/05/ 2012	Количество:	100 кг / га
Дата внесения карбомида:	26/05/ 2012	Количество:	200 кг / га
Дата внесения аммиачной селитры:	/ / 2012	Количество:	кг / га
Дата прореживания:	20/05/ 2012	Количество растений на семенной лунке:	_____
Расстояние между рядами: _____	60 см	Расстояние между семенными лунками:	_____
см			
<b>ОБСЛУЖИВАНИЕ ИСПЫТАНИЯ:</b>			
Дата прополки:	1 <sup>-ая</sup> : 20/05/ 2012	2 <sup>-ая</sup> :	/ / 2012 3 <sup>-ая</sup> : / / 2012
Дата орошения:	1 <sup>-ое</sup> : 19/06/ 2012	2 <sup>-ое</sup> :	/ / 2012 3 <sup>-ее</sup> : / / 2012
	4 <sup>-ое</sup> : / / 2012	5 <sup>-ое</sup> :	/ / 2012 6 <sup>-ое</sup> : / / 2012
Фитосанитарная обработка:	1 <sup>-ая</sup> : / / 2012	2 <sup>-ая</sup> :	/ / 2012 3 <sup>-ая</sup> : / / 2012
Продукт:		Продукт:	
		Продукт:	
<b>ДАТА СБОРА УРОЖАЯ</b>			
1 <sup>-ый</sup> :	/ / 2012	2 <sup>-ой</sup> :	/ / 2012
		3 <sup>-ий</sup> :	/ / 2012
<b>ЗАМЕЧАНИЯ</b>			
Boboi Sodir proceeded with a second fertilization on 16/06/2012 with 150 kg/ha of urea.			
Borders (with 2 lines of cotton variety khujand-0.5, as initially agreed) have not been planted. And the shade given by a range of high trees hampers the good development of nearby elementary plots.			
.....			